
**Ships and marine technology —
Specifications for gas detectors
intended for use on board ships —**

**Part 1:
Portable gas detectors for atmosphere
testing of enclosed spaces**

*Navires et technologie maritime — Spécifications pour les détecteurs
de gaz destinés à être utilisés à bord des navires —*

*Partie 1: Détecteurs de gaz portables pour les essais atmosphériques
des espaces clos*

ISO 19891-1:2017

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 1, *Lifesaving and fire protection*.

This first edition of ISO 19891-1 cancels and replaces ISO/PAS 19891-1:2016, which has been technically revised.

A list of all the parts in the ISO 19891 series, can be found on the ISO website.

Introduction

This document specifies performance, gases to be measured, tolerances for gas measurement, and testing requirements of portable gas detectors used for testing of the atmosphere in enclosed spaces onboard ships prior to entry into those spaces, as required by SOLAS regulation XI-1/7 “Atmosphere testing instrument for enclosed spaces”.

This document specifies the characteristics that portable gas detectors should be assessed against items such as: which gases can be measured, sensitivities, indications, alarm levels, protection against shock, temperature and water ingress, and additional requirements for spaces or areas where a risk of explosion exists.

This document specifies the marine environmental conditions in which portable gas detectors are expected to be used.

This document does not define differences between gases and vapours, nor does it give technical detail on calculations and methodology for explosive limits and operational exposure levels. The intent of this document is to simplify the subject to the essentials and use references for the actual scientific standards if more detailed explanations are required.

Portable gas detectors conforming to this document should only be used onboard ships in accordance with IMO requirements and procedures.

This document does not provide a specification on how to use portable gas detectors, or how to enter enclosed spaces.

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